

3450:221 Calculus I, Kreider
Exam 1 Preparation

The exam is scheduled for Friday 21 September. Try to arrive a few minutes early, as I will start the exam as soon as I can. I can also give you an extra 5 minutes at the end. Bring a calculator.

The exam will cover Chapter 2 and sections 3.1, 3.2 and 3.3. There are 12 problems: 5 on derivatives, 2 on limits, 5 on other topics. The problems are carefully chosen to focus on your understanding of the basic concepts, and to check your mastery of the algebraic skills needed for finding limits and derivatives.

To study for the exam, work problems. Do the quiz problems over again. Do appropriate problems at the end of each chapter.

Here is a list of topics that you need to know:

- Concepts, Definitions, Formulas
 - $\epsilon - \delta$ definition of the limit
 - definition of continuity (be able to state this formally)
 - definition of derivative (be able to state this formally)
 - intermediate value theorem (know the 2 conditions)
 - power rule, product rule, quotient rule
- Calculations, Standard Problems
 - given ϵ , find δ
 - limit proof
 - use IVT to show a function has a root
 - evaluate limits (3 types: $f(a)$, $0/0$, vertical asymptotes)
 - find a derivative using the definition
 - find a derivative using the rules (power, product, quotient)
 - projectile motion problems (find maximum altitude, velocity at a certain time)